

# **EXHIBIT B**

**PATENT****IN THE UNITED STATES PATENT AND TRADEMARK OFFICE***In re* Application of:Issam RAAD, Hend A. HANNA, and Nabeel  
NABULSI

Group Art Unit: 1744

Examiner: Jastrzab, Krisanne Marie

Serial No.: 10/044,842

Atty. Dkt. No.: UTSC:669US

Filed: January 11, 2002

For: NOVEL ANTISEPTIC DERIVATIVES  
WITH BROAD SPECTRUM  
ANTIMICROBIAL ACTIVITY FOR THE  
IMPREGNATION OF SURFACES**DECLARATION OF RAY HACHEM**

I, Ray Hachem, hereby declare as follows:

1. I am a citizen of the U.S., currently residing at 105 Calvi Court, Bellaire, Texas 77401.
2. I currently hold the position of Assistant Professor, Chairman, Division of Internal Medicine Basic Research Committee, The University of Texas M. D. Anderson Cancer Center. A copy of my curriculum vitae, which includes a list of my publications, is attached as Appendix A.
3. I am a skilled expert in infectious disease therapy and control. My expertise in this area is evidenced by the following:
  - I am an Assistant Professor in the Department of Infectious Diseases, Infection

Control and Employee Health, Division of Internal Medicine at The University of Texas M. D. Anderson Cancer Center and was recently appointed as the Chairman of the Basic Science Research Committee for the Division of Internal Medicine.

- I have a total of 94 publications in peer-reviewed journals pertaining to infectious diseases, with two additional publications *in press*.
- In almost 60% of those publications I served as a lead author (first, second, third or last).
- Since my appointment as Assistant Professor in 2001, I have a total of 67 publications on which almost 55% I served as lead author.
- I have published in a large number of prestigious journals, including *New England Journal of Medicine*, *Annals of Internal Medicine*, *Medicine*, *Antimicrobial Agents and Chemotherapy*, *Clinical Infectious Diseases*, *Cancer*, *Infection Control and Hospital Epidemiology*, *Lancet Infectious Diseases*, and *Journal of Infectious Diseases*.
- I have been instrumental in leading animal studies on the testing of antimicrobial catheters at M. D. Anderson Cancer Center and have served as a senior author on several publications exploring the role of the silver iontophoretic catheter as well as the antibiotic-coated catheter. More recently, I have been conducting animal studies exploring the role of novel antiseptic catheters in preventing urinary tract infections. In addition to the animal studies, I have been heavily involve in antimicrobial catheter clinical studies that were published in prestigious journals, including *New England Journal of Medicine* and *Annals of Internal Medicine*.
- I have published in 2004 (Hachem et al. *Infection Control and Hospital*

*Epidemiology* 25(5);391-394, 2004) a study showing that the Molecular typing of resistant bacteria (vancomycin-resistant enterococci) was essential in the prevention of VRE bloodstream outbreaks among patients with hematologic malignancy at M. D. Anderson Cancer Center.

4. I have reviewed the above-referenced patent application and the currently pending claims.

5. I have been asked whether the results set forth in the above-referenced patent application, the first Declaration of Dr. Raad (Exhibit A), and the second Declaration of Dr. Raad (Exhibit B) demonstrate that the presently claimed invention, which involves the combinations of basic reagents and dyes within a particular range of molar ratios, demonstrates a synergistic antiseptic effect compared to either dye alone or basic reagent alone.

6. Attached as Exhibit C is a copy of the 2007 instructions to authors from the Journal "Antimicrobial Agents and Chemotherapy." These instructions were published in Antimicrobial Agents and Chemotherapy, vol. 51, No. 1, pp. 1-22, Jan. 2007. Page 21 of this reference provides a definition of synergy as follows:

Synergy is defined in two-dimensional or checkerboard tests when the fractional inhibitory concentration (FIC) or fractional bactericidal concentration (FBC) index ( $\Sigma$ ) is  $\leq 0.5$ . In killing curves, synergy is defined as a  $\geq 2\text{-log}_{10}$  decrease in CFU per milliliter between the combination and its most active constituent after 24 h, and the number of surviving organisms in the presence of the combination must be  $\geq 2\text{-log}_{10}$  CFU/ml below the starting inoculum. At least one of the drugs must be present in a concentration which does not affect the growth curve of the test organism when used alone.

Based on the data presented in the declarations, I believe that there is overwhelming synergy data (particularly on the surfaces of coated medical devices) described in the text of the patent application (UTSC:699US), as well as subsequent research done, enough to distinguish it from all prior art identified by the examiner.

In evaluating the activity of antimicrobial devices by zones of inhibition (ZOI), as presented in the body of the original application/declaration (Declaration 1), I will be using the term "Synergism or Synergy" to mean that the combined action (ZOI) of Gentian Violet (GV) and chlorhexidine (CHX) produces a total effect greater than the expected sum of the effects (ZOI) of the chemicals separately (e.g.  $1 + 1 = 3$  or greater, rather than the expected 2).

Here are the evidences of synergy as per the results published in UTSC:699US:

1) Tables 2 and 3, on page 20, show ZOI produced by coated endotracheal PVC Tubes (using DCM or MeOH). Page 20 of the patent application publication says, "As shown in Tables 2 and 3, endotracheal PVC tubes impregnated with Gendine are far more effective against all organisms when compared with those impregnated with CHX, and more effective than PVC tubes impregnated with GV against *Pseudomonas aeruginosa*."

2) Table 4, on page 21, shows ZOI produced by coated silicone catheters. Page 21 states, "data in table 4 shows how silicone catheter impregnated with gendine are more effective in inhibiting MRSA, PS and *C. parapsilosis* than catheters impregnated with either GV or CHX."

3) Table 5, on page 21, shows ZOI produced by coated polyurethane catheters (PU). Page 21 states, " PU catheters impregnated with gentine are more effective than PU catheters impregnated with GV in inhibiting *Pseudomonas aeruginosa*, and more effective than PU catheters impregnated with CHX against all three organisms, MRSA, PS and *C. parapsilosis*."

4) Table 6, on page 22, shows ZOI produced by coated silk sutures. Section Page 21 states, " silk sutures impregnated with gentine are significantly more effective in inhibiting MRSA, PS and *C. parapsilosis* than sutures coated with either GV or CHX."

5) Similarly, tables 7-10, on pages 25-25 show similar synergy against various bacterial and fungal organisms, when GV was combined with other basic reagents on the surfaces of medical devices.

6) Furthermore, based on the definitions of synergy as published in *Antimicrobial Agents and Chemotherapy* (the main journal of the American Society for Microbiology), vol. 51, No. 1, pp. 1-22, Jan. 2007, it is clear that Dr. Raad, Dr. Hanna and colleagues have demonstrated such synergy in their study on novel alcohol-free antiseptic mouthwash (Bahna et al. *Oral Oncology* 43:159-164, 2007) as clearly described in Table 1 (page 161) and Table 2 (page 162).

8. The results set forth in the specification and the data that is cited in the first and second Declarations of Dr. Raad clearly establish that compositions that include a dye and basic reagent in the molar ratios set forth in the claims exhibit surprising and unexpected synergy for

disinfecting and/or sterilizing surfaces or a fluid compared to dye alone or basic reagent alone.

9. I hereby declare that all statements made by my own knowledge are true and all statements made on information and belief are believed to be true and further that statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment under § 100 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of this application or any patent issued thereon.

Date 10/31/07



Ray Hachem, MD  
Assistant Professor  
Chairman, Basic Science Research  
Committee, Division of Internal  
Medicine



# **APPENDIX A**



**CURRICULUM VITAE****Ray Y. Hachem, MD****PRESENT TITLE AND AFFILIATION****Primary Appointment**

N/A

**Dual/Joint/Adjunct Appointment/Ad Interim**

N/A

**CITIZENSHIP**

United States

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**EDUCATION****Degree-Granting Education**

Wharton Junior College, Wharton, Texas, BA, 1980, Science

The University of Texas, Austin, Texas, BS, 1983, Chemical Engineering, (Minor: Biomedical Engineering),

University of Santiago, Santo Domingo, Dominican Republic, MD, 1986

**Postgraduate Training**

Research Assistant, Baylor College of Medicine, Pharmacology Department, Houston, Texas, Dr. Bush, 5/1980-9/1980

**CREDENTIALS****Board Certification**

N/A

**Licensures****Active**

N/A

**Inactive**

N/A

**EXPERIENCE/SERVICE****Academic Appointments**

Postdoctoral Fellow, Department of Medical Specialties, Infectious Diseases, The University of Texas M. D. Anderson Cancer Center, Houston, Texas, 1/1988-1/1998

Research Investigator, Department of Infectious Diseases, Infectious Diseases, The University of Texas M. D. Anderson Cancer Center, Houston, Texas, 1/1998-1/2001

Assistant Professor, Department of Infectious Diseases, Infection Control and Employee Health, Infectious Diseases, The University of Texas M. D. Anderson Cancer Center, Houston, Texas, 7/2001-present

**Administrative Appointments/Responsibilities**

Member, Middle East Task Force, Houston, 2002-2007

Member, Clinical Research Committee, Houston, 2003-2006

Member, Ad Hoc Committee of the Infection Control Subcommittee for the Prevention of Fungal Infections, Houston, 2003-2007

Member, Institutional Research Grant (IRG) Committee, Houston, 2005-2007

Member, Institutional Review Board, Houston, 2006

Chairman, Division of Internal Medicine Research Committee, Houston, 2007

Member, Division of Internal Medicine Grand Round Planning Committee, Houston, 2007

Member, Steering Committee for Sister Institution between M.D. Anderson Cancer Center and American University of Beirut, Houston, 2007

#### **Other Appointments/Responsibilities**

Coordinator, ID/BMT Task Force for Collaborative Research, The University of Texas M. D. Anderson Cancer Center, Houston, 2004-2007

Coordinator, ID/Leukemia Task Force for Collaborative Research, The University of Texas M. D. Anderson Cancer Center, Houston, 2005-2007

#### **Endowed Positions**

N/A

#### **Consultantships**

N/A

#### **Military or Other Governmental Service**

N/A

#### **Institutional Committee Activities**

N/A

### **HONORS AND AWARDS**

AICHE

Dean's High Honor List

Golden Key National Honor Society

Omega Chi Epsilon of Chemical Engineering

Tau Beta Pi

### **RESEARCH**

#### **Grants and Contracts**

##### **Funded**

Principal Investigator-MDACC, Novel Detection Method Performed on Serum for the Diagnosis of Invasive Fungal Infection in Cancer Patients, LS2003-00009622, Mercy and Company, 2003-2004, \$12,500

Principal Investigator-MDACC, The Role of Aerosolyzed Agents in Combination with EDTA in Preventing Invasive Pulmonary Aspergillosis (IPA) in Murine Model, LS2003-00009173LE, Enzon, Inc., 2003-2005, \$89,750

Principal Investigator-MDACC, Activity of Antibiotics Against Gram Positive Organisms Embedded in Biofilm, LAB04-0555, Unknown, \$28,000

Principal Investigator-MDACC, Clinical Experience with Tigecycline in Cancer Patients, 3074A1-6000, Wyeth, \$47,770

Principal Investigator-MDACC, In Vitro Activity of Antifungals Against Candida Species Embedded in Biofilm, Unknown, \$41,000

Principal Investigator-MDACC, Retrospective Chart Review to Evaluate the Hepatic Safety Profile of Concomitant Use of Caspofungin and Cyclosporin A, CR02-635, Unknown, \$48,000

Principal Investigator-MDACC, Safety of Linezolid in Bone Marrow Transplant Patients, RCR02-734, Pfizer Pharmaceutical, \$50,000

##### **Pending**

Principal Investigator-MDACC, Methicillin-Resistant Staphylococcus Aureus Pneumonia in Cancer Patients: A 6 Year Experience at a Major Cancer Center, Pfizer Pharmaceutical, \$50,000

**Other**  
N/A

**Completed**  
N/A

**Not Funded**  
N/A

**Protocols**  
**Funded**

Co-Principal Investigator, Randomized trial comparing imipenem-cilastatin and cefepime as initial therapy for fever in neutropenic patients, DM94-065, 1994-present

Co-Principal Investigator, Open study of Synercid (quinupristin/dalfopristin, RP59500) for emergency use (infections due to resistant bacteria, treatment failure or in treatment-intolerant patients), DM96-158, 1996-present

Co-Principal Investigator, A multicenter, double-blind, randomized, comparative study to evaluate the safety, tolerability, efficacy of pneumocandin (MK-0991) vs. Amphotericin B in the treatment of invasive candidiasis, DM97-302, 1997-present

Co-Principal Investigator, A randomized, open label, comparative, multicenter trial of voriconazole vs. Ambisome for empirical antifungal therapy in immunocompromised patients with persistent fever and neutropenia, DM97-304, 1997-present

Co-Principal Investigator, An open label, non-comparative, multicenter, phase III trial of the efficacy, safety and toleration of voriconazole in the primary or secondary treatment of invasive fungal infections., DM97-306, 1997-present

Co-Principal Investigator, Open label, randomized, multicenter, phase III study of intravenous Synercid 7.5 mg/kg every 8 hours vs. Vancomycin or Nafcillin in the treatment of 380 patients with central venous catheter-related infection, DM97-305, 1997-present

Co-Principal Investigator, A multicenter, open, non-comparative study to estimate the safety, tolerability, and efficacy of pneumocandin (MD-0991) in the treatment of invasive Aspergillus infections in adults who are refractory to or intolerant of Amphotericin B, lipid formulations of Amphotericin B, or azoles, DM98-103, 1998-present

Co-Principal Investigator, Central Venous Catheter and Blood Stream Infection in High-dose Bolus Interleukin-2 Treated Patients with Melanoma and Renal cell Carcinoma, RCR06-0098, 1998-present

Co-Principal Investigator, Efficacy of long-term silicone central venous catheters impregnated with rifampin and minocycline (ICRM) for preventing catheter-related infections: a prospective, randomized study, DM98-134, 1998-present

Co-Principal Investigator, Linezolid (PNU-100766) given intravenous or orally for compassionate use in patients with significant, multi-drug resistant gram positive infections, DM98-173, 1998-present

Co-Principal Investigator, Efficacy of hemodialysis central venous catheters impregnated with rifampin and minocycline (ICRM) for preventing catheter-related infections: a prospective, randomized study, DM99-278, 1999-present

Co-Principal Investigator, Linezolid in the eradication of fecal carriage of vancomycin-resistant enterococci (VRE) in adult patients, MD27-299, 1999-present

Co-Principal Investigator, Open Label Treatment Protocol for the Safety and Efficacy of SCH 56592 in the Treatment of Invasive Fungal Infections, DM99-134, 1999-present

Co-Principal Investigator, Phase III Randomized, Double-Blind (Double Dummy) Study of SCH 56592 vs. Fluconazole in the prophylaxis of Invasive Fungal Infections in High-Risk Recipients of Allogeneic Progenitor Cell Transplantation with Graft-Versus-Host-Disease, DM99-023, 1999-present

Co-Principal Investigator, Prospective Randomized Study Comparing Synercid vs. Zyvox in the Treatment of Vancomycin-Resistant Enterococcal Infections, DM99-294, 1999-present

Co-Principal Investigator, Phase II Study of Safety, Tolerance, Efficacy, Pharmacokinetics of Posaconazole (SCH 56592) for the Treatment of Invasive Fungal Infections in Immunocompromised Hosts, DM00-380, 2000-present

Co-Principal Investigator, A Retrospective Study to Establish a Historical Database on the Efficacy of Standard Antifungal Therapy in Patients with Invasive Fungal Infections, RCR01-581, 2001-present

Co-Principal Investigator, Non-Invasive Molecular Methods Performed on Serum for the Diagnosis of, LAB01-611, 2001-present

Co-Principal Investigator, Open-Label, Limited Access Protocol of Posaconazole (SCH 56592) in Invasive Fungal Infections, DM01-536, 2001-present

Co-Principal Investigator, Phase II, Randomized, Open-Label, Multi-center Study to Evaluate the Safety and Efficacy of Dalbavancin versus Vancomycin in the Treatment of Catheter-related Bloodstream Infections with Suspected or Confirmed Gram-Positive Bacterial Pathogens, ID01-687, 2001-present

Co-Principal Investigator, An Open Label Non-Comparative Study of the Safety and Efficacy of Intravenous Anidulafungin Plus AmBisome<sup>®</sup> As A Treatment for Invasive Aspergillosis, CS2002-000064865M, 2002-2005, \$393,049

Co-Principal Investigator, The Role of Antifungal in the Treatment of Invasive Aspergillosis (IA) in Patients, SR2002 – 00007404HM, 2002-2006, \$99,120

Principal Investigator, Novel Detection Method Performed on Serum for the Diagnosis of Invasive, LAB02-733, 2002-present

Co-Principal Investigator, Piperacillin/Tazobactam Vs. Cefepime in the Treatment of High Risk Febrile Neutropenic Cancer Patients, ID02-182, 2002-present

Principal Investigator, Retrospective Chart Review to Evaluate the Hepatic Safety Profile of Concomitant Use of Caspofungin and Cyclosporin A, RCR02-635, 2002-present

Co-Principal Investigator, A Randomized Controlled Trial of Posaconazole (SCH 56592) Vs. Standard Azole Therapy for the Prevention of Invasive Fungal Infections Among High-Risk Neutropenic Patients, CS2002 – 00007652DH, 2004-2005, \$72,164

Principal Investigator, Activity of Antibiotics Against Gram Positive Organisms Embedded in Biofilm, LS2004-000011611CG, 2004-2005, \$28,750

Co-Principal Investigator, The Impact of Vitamin B6 in Preventing the Hematologic Toxicities of Linezolid in Cancer Patients, CS2005-00014312PL, 2004-2005, \$8,714,500

Principal Investigator, Safety of Linezolid in Bone Marrow Transplant Patients, CS2004-00011747DH, 2005-2006, \$5,000,000

Co-Principal Investigator, The Impact of Vitamin B6 in Preventing the Hematologic Toxicities of Linezolid in Cancer Patients, 2005-0621, 2005-2006, \$89,145, Pfizer

Collaborator, Exchange of Antimicrobial Coated Catheters in the Management of Catheter-Related Bacteremia: A Prospective Randomized Trial, 2005-0734, 2005-present

Co-Chairman, Phase II, Open-Label Study to Evaluate the Safety and Efficacy of Daptomycin in the Treatment of Catheter-Related Staphylococcus aureus Bloodstream Infections, 2005-0622, 2005-present, Cubist Pharmaceuticals

Co-Chair, The Role of Posaconazole Salvage Therapy Compared to Amphotericin B Lipid Formulation (AMB/LPD) in Combination with Either Itraconazole or Caspofungin in the Treatment of Invasive Aspergillosis (IA) in Patients with Leukemia and Bone Marrow Transplant, RCR05-0057, 2005-present

Principal Investigator, Clinical Experience with Tigecycline in Cancer Patients, RCR06-0359, 2006-present, Wyeth

Principal Investigator, Methicillin Resistant Staphylococcus Aureus (MRSA) Pneumonia in Cancer Patients: A 6 Year Experience Study with specific evaluation of MRSA minimal inhibitory concentration, DR07-0325, 2007-present, Pfizer

#### Unfunded

Co-Principal Investigator, Candidemia in cancer patients: a retrospective review, RCR02-536, 2002-2004

Co-Principal Investigator, Susceptibility Patterns of Vancomycin-Resistant Enterococci (VRE) to Quinupristin/Dalfopristin (QD) and Linezolid (LZD) Before and After Clinical Use, RCR03-0244, 2003-present

Principal Investigator, In Vitro Activity of Antifungals Against Candida Species Embedded in Biofilm, LAB04-0587, 2004-present

Co-Principal Investigator, Vancomycin Resistant Enterococcus (VRE) Faecium vs VRE Fecalis, RCR04-0860, 2004-present

Collaborator, Exchange of Antimicrobial Coated Catheters in the Management of Catheter-Related Bacteremia: A Prospective Randomized Trial, 2005-0734, 2005-present

Co-Principal Investigator, Staphylococcus Aureus Bacteremia in Cancer Patients. Risk Factors for Complications and Outcome, RCR05-0059, 2005-present

Co-Principal Investigator, Central Venous Catheter and Blood Stream Infection in High-dose Bolus Interleukin-2

Treated Patients with Melanoma and Renal cell Carcinoma, RCR06-0098, 2006-present

Principal Investigator, Testing the Efficacy of Antimicrobial Vascular Catheters Placed Subcutaneously in a Rabbit Model, 10-05-12361, 2006-present

Co-Principal Investigator, The Role of Antiseptic Surface Coating to Reduce Urinary Tract Infection in the Chronically Catheterized Rabbit Model, 05-05-04461, 2006-present

Principal Investigator, The Safety of the Combination of Citrate or EDTA with Minocycline or Tigecycline and Ethanol When Used as and Antimicrobial Lock Solution in the Jugular Vein in the Rabbit Model, 02-06-03261, 2006-present

Co-Principal Investigator, Efficacy of Gendine-Coated Implants in Preventing Infection of Tibial Fractures in a Rabbit Model, 06-07-06761, 2007-present

## Patents and Technology Licenses

### Patents

N/A, Issam Raad, Robert Sherertz, Ray Hachem. EDTA and Other Chelators With or Without Antifungal Antimicrobial Agents for the Prevention and Treatment of Fungal Infections, United States, 09/139,522, 8/25/1998-12/26/2000, Filed

N/A, Issam Raad, Robert Sherertz, Ray Hachem. EDTA and Other Chelators With or Without Antifungal Antimicrobial Agents for the Prevention and Treatment of Fungal Infections, United States, 09/680,061, 10/4/2000-1/21/2003, Filed

### Technology Licenses

N/A

## Grant Reviewer/Service on Study Sections

N/A

## PUBLICATIONS

### Articles in Peer-Reviewed Journals

1. Reuben, A, Anaissie E, Nelson PE, Hachem R, Legrand C, Ho DH, Bodey GP. Antifungal susceptibility of 44 clinical isolates of *Fusarium* species determined by using a broth micro dilution method. *Antimicrob Agents Chemother* 33:1647-1649, 1989
2. Ro J, Lee D, Legrand C, Anaissie E, Hachem R, Ayala A. *Fusarium* infection - experimental model. *Mod Pathol* 3, 1990
3. Legrand, C, Anaissie E, Hachem R, Nelson P, Bodey GP, Ro J. Experimental fusarial hyalohyphomycosis in a murine model. *J Infect Dis*. 164:944-948, 1991
4. Anaissie EJ, Hachem R, Legrand C, Legenne P, Nelson P, Bodey GP. Lack of activity of amphotericin B in systemic murine fusarial infection. *J Infect Dis* 165:1155-7, 6/1992
5. Anaissie E, Gokaslan A, Hachem R, Rubin R, Griffin G, Robinson R, Sobel J, Bodey G. Azole therapy for trichosporonosis: clinical evaluation of eight patients, experimental therapy for murine infection, and review. *Clin Infect Dis* 15:781-7, 11/1992
6. Anaissie E, Hachem R, KTin-U C, Stephens LC, Bodey GP. Experimental hematogenous candidiasis caused by *Candida krusei* and *Candida albicans*: species differences in pathogenicity. *Infect Immun* 61:1268-71, 4/1993
7. Karyotakis NC, Anaissie EJ, Hachem R, Dignani MC, Samonis G. Comparison of the efficacy of polyenes and triazoles against hematogenous *Candida krusei* infection in neutropenic mice. *J Infect Dis* 168:1311-3, 11/1993
8. Anaissie EJ, Karyotakis NC, Hachem R, Dignani MC, Rex JH, Paetznick V. Correlation between in vitro and in vivo activity of antifungal agents against *Candida* species. *J Infect Dis* 170:384-9, 8/1994
9. Anaissie EJ, Hachem R, Karyotakis NC, Gokaslan A, Dignani MC, Stephens LC, Tin UCK. Comparative efficacies of amphotericin B, triazoles, and combination of both as experimental therapy for murine trichosporonosis. *Antimicrob Agents Chemother* 38:2541-4, 11/1994
10. Karyotakis NC, Dignani MC, Hachem R, Anaissie EJ. Activities of D0870, a novel triazole, against *Candida lusitanae* and *Trichosporon beigelii* in experimental murine infections. *Antimicrob Agents Chemother* 39:571-3, 2/1995
11. Raad I, Hachem R. Treatment of central venous catheter-related fungemia due to *Fusarium oxysporum*. *Clin Infect Dis* 20:709-11, 3/1995
12. Raad I, Darouiche R, Hachem R, Sacilowski M, Bodey GP. Antibiotics and prevention of microbial colonization of catheters. *Antimicrob Agents Chemother* 39:2397-400, 11/1995

13. Raad I, Hachem R, Zermeno A, Stephens LC, Bodey GP. Silver iontophoretic catheter: a prototype of a long-term antinfecive vascular access device. *J Infect Dis* 173:495-8, 2/1996
14. Raad I, Darouiche R, Hachem R, Mansouri M, Bodey GP. The broad-spectrum activity and efficacy of catheters coated with minocycline and rifampin. *J Infect Dis* 173:418-24, 2/1996
15. Raad I, Hachem R, Leeds N, Sawaya R, Salem Z, Atweh S. Use of adjunctive treatment with interferon-gamma in an immunocompromised patient who had refractory multidrug-resistant tuberculosis of the brain. *Clin Infect Dis* 22:572-4, 3/1996
16. Raad, II, Whimbey EE, Rolston KV, Abi-Said D, Hachem RY, Pandya RG, Ghaddar HM, Karl CL, Bodey GP. A comparison of aztreonam plus vancomycin and imipenem plus vancomycin as initial therapy for febrile neutropenic cancer patients. *Cancer* 77:1386-94, 4/1996
17. Raad I, Hachem R, Zermeno A, Dumo M, Bodey GP. In vitro antimicrobial efficacy of silver iontophoretic catheter. *Biomaterials* 17:1055-9, 6/1996
18. Hachem R, Raad I, Rolston KV, Whimbey E, Katz R, Tarrand J, Libshitz H. Cutaneous and pulmonary infections caused by *Mycobacterium vaccae*. *Clin Infect Dis* 23:173-5, 7/1996
19. Raad I, Buzaid A, Rhyne J, Hachem R, Darouiche R, Safar H, Albitar M, Sherertz RJ. Minocycline and ethylenediaminetetraacetate for the prevention of recurrent vascular catheter infections. *Clin Infect Dis* 25:149-51, 7/1997
20. Raad I, Darouiche R, Dupuis J, Abi-Said D, Gabrielli A, Hachem R, Wall M, Harris R, Jones J, Buzaid A, Robertson C, Shenaq S, Curling P, Burke T, Ericsson C. Central venous catheters coated with minocycline and rifampin for the prevention of catheter-related colonization and bloodstream infections. A randomized, double-blind trial. The Texas Medical Center Catheter Study Group. *Ann Intern Med* 127:267-74, 8/1997
21. Raad, II, Hachem RY, Abi-Said D, Rolston KV, Whimbey E, Buzaid AC, Legha S. A prospective crossover randomized trial of novobiocin and rifampin prophylaxis for the prevention of intravascular catheter infections in cancer patients treated with interleukin-2. *Cancer* 82:403-11, 1/1998
22. Raad, II, Darouiche RO, Hachem R, Abi-Said D, Safar H, Darnule T, Mansouri M, Morck D. Antimicrobial durability and rare ultrastructural colonization of indwelling central catheters coated with minocycline and rifampin. *Crit Care Med* 26:219-24, 2/1998
23. Hachem, RY, Raad I. Clinical presentation and management of methicillin-resistant *Staphylococcus epidermidis* (MRSE) bloodstream infections. *Antibiotics for Clinicians* 2:21-24, 1998
24. Darouiche RO, Raad, II, Heard SO, Thornby JL, Wenker OC, Gabrielli A, Berg J, Khardori N, Hanna H, Hachem R, Harris RL, Mayhall G. A comparison of two antimicrobial-impregnated central venous catheters. Catheter Study Group. *N Engl J Med* 340:1-8, 1/1999
25. Raad I, Bompert F, Hachem R. Prospective, randomized dose-ranging open phase II pilot study of quinupristin/dalfopristin versus vancomycin in the treatment of catheter-related staphylococcal bacteremia. *Eur J Clin Microbiol Infect Dis* 18:199-202, 3/1999
26. Hanna, H, Abbas J, Bodey G, Mardani M, Girgawy E, Abi-Said D, Hachem R, Raad I. *Candida krusei* Fungemia (CKF): An Escalating Serious Infection in Immunocompromised Patients (IPts). . Proceedings of the 9th Annual Meeting of the Society for Healthcare Epidemiology of America (SHEA), San Francisco, CA., 4/1999
27. Abbas J, Bodey GP, Hanna HA, Mardani M, Girgawy E, Abi-Said D, Whimbey E, Hachem R, Raad I. *Candida krusei* fungemia. An escalating serious infection in immunocompromised patients. *Arch Intern Med* 160:2659-64, 9/2000
28. Torres, HA, Hanna HA, Graviss L, Chaiban G, Hachem R, Chemaly RF, Girgawy E, Raad II. Chest tube related multidrug-resistant *Staphylococcus aureus* empyema: could the chest tube be coated with antiseptics? . *Infect Control Hosp Epidemiol*, 2000
29. Hachem, R, Sumoza D, Hanna H, Girgawy E, Munsell M, Raad I. Clinical and Radiologic Predictors of Invasive Pulmonary Aspergillosis in Cancer Patients: Should the EORTC/MSG Criteria be Revised?. *Cancer*, 2000
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**Invited Articles**

N/A

**Editorials**

N/A

**Other Articles**

N/A

**Abstracts**

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#### Books (edited and written)

N/A

#### Letters to the Editor

1. Hachem, R, Raad I, Husni R, Whimbey E, Jacobson K, Rolston K. Quinupristin/dalfopristin (QD) plus minocycline (M) in the treatment of vancomycin-resistant Enterococcus faecium (VREF) infection in cancer patients. Proceedings of the 36th Annual Meeting of the Infectious Diseases Society of America (IDSA), Denver, Colorado,, 11/1998.

#### Manuals, Teaching Aids, Other Teaching Publications

N/A

#### Other Publications

N/A

#### EDITORIAL AND REVIEW ACTIVITIES

##### Editor/Service on Editorial Board(s)

N/A

##### Member of Editorial Review Board

N/A

##### Journal Reviewer

N/A

##### Other Editorial and Review Activities

Reviewer, Biomaterials , 2005-2007

Reviewer, CID (Clinical Infection Diseases), 2005-2007

Reviewer, European Journal of Clinical Microbiology Infectious Diseases, 2005-2007

Reviewer, ICHE, 2005-2007

Reviewer, Therapy, 2005-2007

Reviewer, Transplantation, 2005-2007

#### TEACHING

##### Teaching Within Current Institution - The University of Texas M. D. Anderson Cancer Center

###### Formal Teaching

###### Courses Taught

N/A

###### Training Programs

N/A

###### Other Formal Teaching

N/A

**Supervisory Teaching****Committees****Advisory Committees**

N/A

**Supervisory Committees**

N/A

**Examining Committees**

N/A

**Direct Supervision****Undergraduate and Allied Health Students**

N/A

**Medical Students**

N/A

**Graduate Students**

N/A

**Postdoctoral Research Fellows**

N/A

**Clinical Residents and Fellows**

N/A

**Other Supervisory Teaching**

N/A

**Teaching Outside of Current Institution****Formal Teaching****Courses Taught**

N/A

**Training Programs**

N/A

**Other Formal Teaching**

N/A

**Supervisory Teaching****Committees****Advisory Committees**

N/A

**Supervisory Committees**

N/A

**Examining Committees**

N/A

**Direct Supervision****Undergraduate and Allied Health Students**

N/A

**Medical Students**

N/A

**Graduate Students**

N/A

**Postdoctoral Research Fellows**

N/A

**Clinical Residents and Fellows**

N/A

**Other Supervisory Teaching**

N/A

**CONFERENCES AND SYMPOSIA**

**Organization of National or International Conferences/Symposia (Include chairing session)**

Worldwide Institute for Medical Education, General Organization of Teaching Hospitals and Institutes, Cairo, Egypt, Egypt, Presenter, 10/2003

ENZON, Speaker Development Program, San Juan, Puerto Rico, Puerto Rico, Speaker, 3/2004

European Congress, 14th European Congress of Clinical Microbiology and Infectious Diseases, Prague, Czech Republic, Speaker, 5/2004

International Immunocompromised Host Society Meeting, 13th International Immunocompromised Host Society Meeting, Granada, Spain, Speaker, 6/2004

International Immunocompromised Host Society Meeting, 14th International Immunocompromised Host Society Meeting, Crans-Montana, Speaker, 7/2006

**Presentations at National or International Conferences****Invited**

N/A

**Other, Including Scientific Exhibitions**

Novel Antifungal Agents, Worldwide Institute of Medical Education at the general Organization of Teaching Hospitals and Institutes at the general Organization of Teaching Hospitals and Institutes, Cairo, Egypt, 10/30/2003

Fungal Infections in At-Risk Patients: Meeting the Challenge with ABELCET, Speaker development program sponsored by ENZON, San Juan, Puerto Rico, 3/27/2004

Posaconazole as salvage therapy for Pseudallescheria infections: A case series, 14th European Congress of Clinical Microbiology and Infectious Diseases, Prague, Czech Republic, 5/1/2004

13th International Immunocompromised Host Society Meeting, Granada, Spain, 6/27/2004

**Seminar Invitations from Other Institutions**

N/A

**Lectureships and Visiting Professorships**

N/A

**Other Presentations at State and Local Conferences**

Novel Antifungal Agents, The General Organization of Teaching Hospitals and Institutes at the general Organization of Teaching Hospitals and Institutes, Worldwide Institute for Medical Education, Cairo, Egypt, 2003

Fungal Infections in At-Risk Patients: Meeting the challenge with ABELCET, Speaker Development Program, Enzon, Speaker Development Program, San Juan, Puerto Rico, 2004

Immunocompromised, 13th International Immunocompromised Host Society Meeting, International Immunocompromised Host Society, Granada, Spain, 2004

Posaconazole as salvage therapy for Pseudallescheria infections: A case series, 14th European Congress of Clinical Microbiology and Infectious Diseases, European Congress of Clinical Microbiology, Prague, Czech Republic, 2004

Immunocompromised, 14th International Immunocompromised Host Society Meeting, International Immunocompromised Host Society, Crans-Montana, Switzerland, 2006

**PROFESSIONAL MEMBERSHIPS/ACTIVITIES****Professional Society Activities, with Offices Held****National and International**

American Society for Microbiology

Houston Infectious Disease Society

Infectious Disease Society of America

Texas Infectious Disease Society

The Transplantation Society (Infectious Disease Society)

**Local/State**

N/A

**UNIQUE ACTIVITIES**

1. Languages: Spanish (4th language); English (3rd language); French (2nd language); and Arabic (1st language)

**DATE OF LAST CV UPDATE**

9/13/2007

